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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,654	03/15/2004	Hui-Chun Hsu	OP-093000099	8584
7590	07/28/2005		EXAMINER	
Yi-Wen Tseng			DUONG, THO V	
4331 Stevens Battle Lane			ART UNIT	PAPER NUMBER
Fairfax, VA 22033			3743	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/799,654

Applicant(s)

HSU, HUL-CHUN

Examiner

Tho v. Duong

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed subject matter of “linear spiral structure” and “winded porous plate” must be shown or the feature(s) canceled from the claims 9 and 10. No new matter should be entered. Element (14) is indicated as a support structure but is not clear to be linear spiral structure or winded porous plate.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

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The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the claimed subject matters of spiral structure, linear spiral structure and winded porous plate are not supported in the specification.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed subject matter of “a winded porous structure” is not positively described in the specification.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1-2,5-7,12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Ernst et al. (US 4,565,243). Ernst discloses (figures 1-3) a heat pipe having a pipe member (12) and a bottom lid (18) covering a bottom end of the pipe member; a wick structure comprising at least one woven mesh (screen 16,22,24,26) attached to an internal sidewall of the heat pipe and a sintering powder (14) attached partially to an internal surface of the bottom lid; a top lid (20) comprising a top end of the pipe member; a support member (36) installed in the pipe member to press the woven mesh (screen 16) towards the internal sidewall; the woven mesh (screen 16,22,24,26) is integrated (molded) with the sintered powder, wherein the woven mesh (22,24,26) extend over the internal end surface of lid (18). Ernst discloses that the bottom lid (18) is flat and having a planar external surface, which is capable of being in contact with a heat source as desired.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ernst et al. in view of Connors et al. (US 6,907,918). Ernst substantially discloses all of applicant's claimed invention as discussed above except for the limitation of a filling tube on top lid and a sealing mean to seal the filling tube. Connors discloses (figures 1 and 5) a heat pipe having a filling tube (36) with sealing means (pinched off) extending through the top lid for the purpose of loading a working fluid inside the heat pipe. It would have been obvious to one having ordinary skill in

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the art at the time the invention was made to use Connors' teaching in Ernst's heat pipe for the purposing of loading a working fluid inside the heat pipe.

Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ernst in view of Low et al. (US 3,789,920). Ernst substantially discloses all of applicant's claimed invention as discussed above except for the limitations of a spiral support structure or a pressing board. Low discloses (figure 1) a heat pipe having a pressing board (16) having a spiral shape pressing a wick (14) lined inside of the heat pipe for the purpose of retaining the wick on the internal surface of the heat pipe. Regarding claim 10, applicant does not disclose any criticality or unexpected result that having a winded porous plate as a support member. In fact, applicant only merely states that the support member (14) includes a planar structure, a linear structure or a porous curled structure. Accordingly, the use of a winded porous plate is deemed to be design consideration, which fails to patentably distinguish over the prior art of Low's support member.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Eastman (US 4,196,504) discloses a tunnel wick heat pipes.

Sarraf et al. (US 5,002,122) discloses a tunnel atterty wick for high power density surface.

Mochizuki et al. (US 20030066628A1) discloses a tower type finned heat pipe.

Ferrell (US 3,754,594) discloses a unilateral heat transfer apparatus.

Sarraf (US 6,793,009) discloses a heat pipe having a filling tube.

Matsuda et al. (US 4,254,821) discloses a heat pipe deicing apparatus.

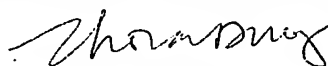
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Oh et al. (US 20030141045A1) discloses a heat pipe having wick with variety of pore size.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F (first Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet can be reached on 571-272-4791. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tho v Duong  
Primary Examiner  
Art Unit 3743



TD  
July 21, 2005